FIG. 1

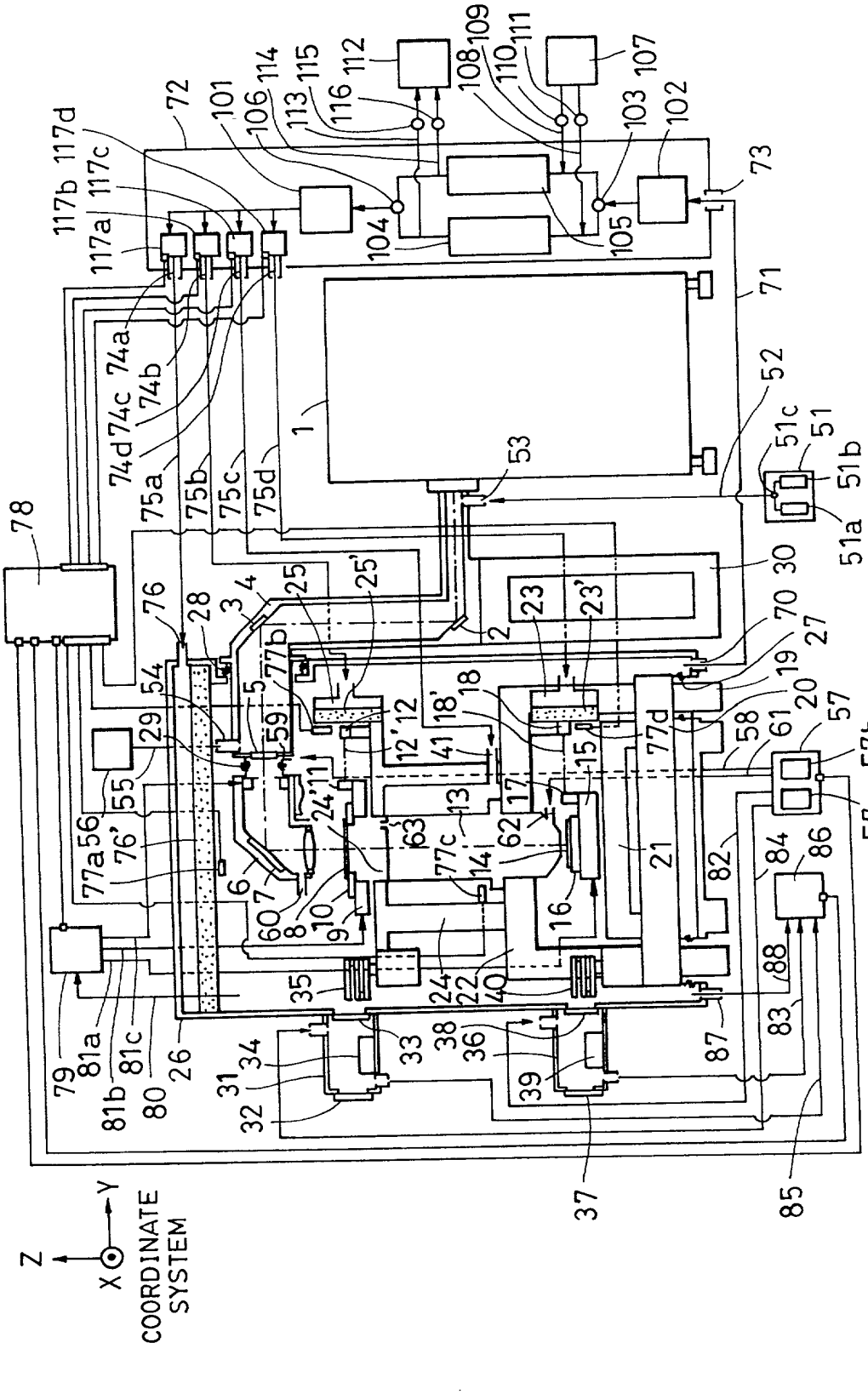


FIG. 2

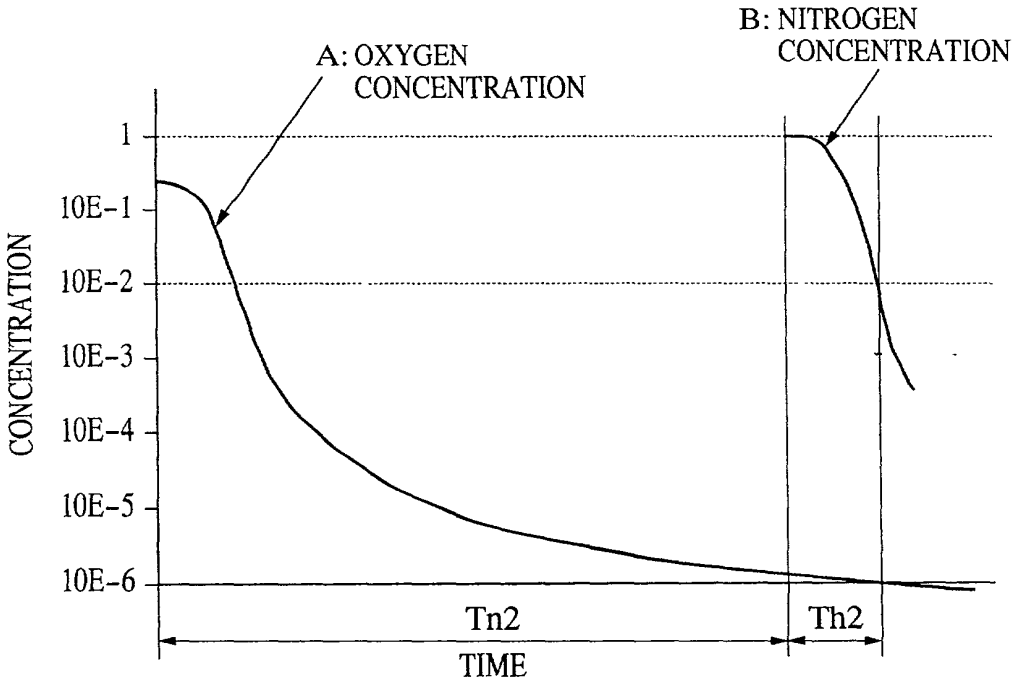

A: OXYGEN CONCENTRATION
B: NITROGEN CONCENTRATION
CONCENTRATION
1
10E-1
10E-2
10E-3
10E-4
10E-5
10E-6
Tn2
Th2
TIME

FIG. 3

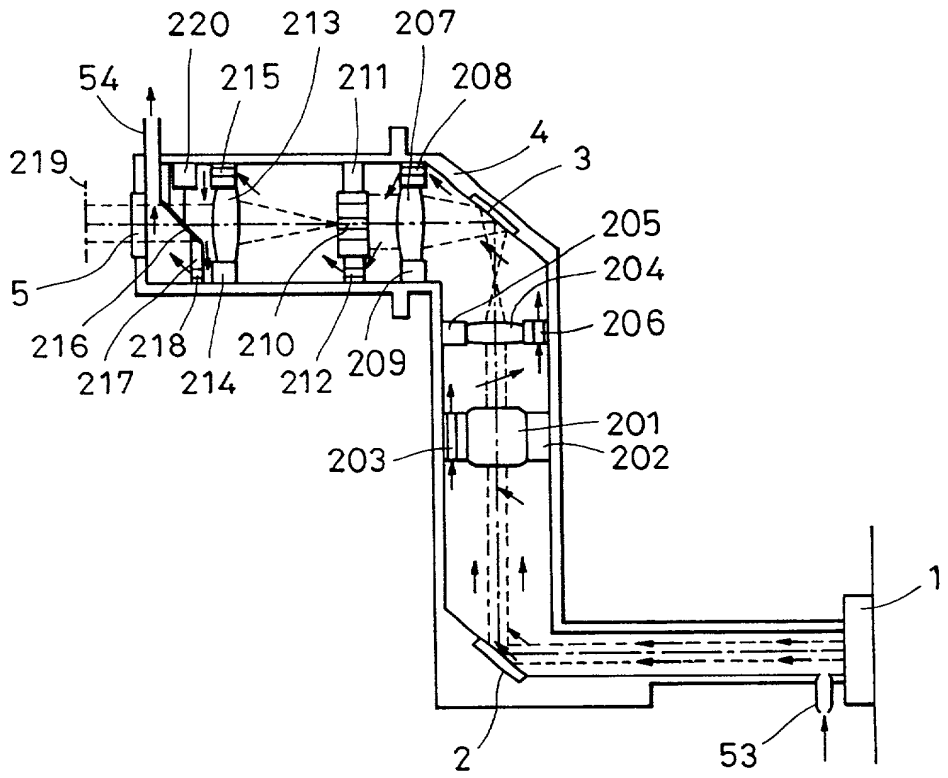

220
213
207
54
215
211
208
4
3
219
205
204
5
206
216
218
210
209
217
214
212
201
203
202
1
2
53

FIG. 4

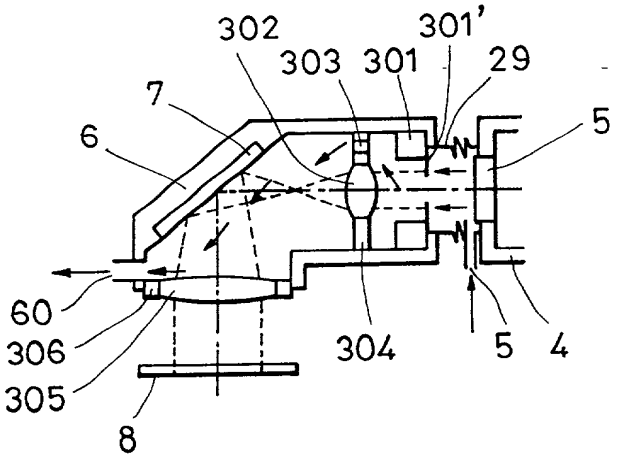


FIG. 5

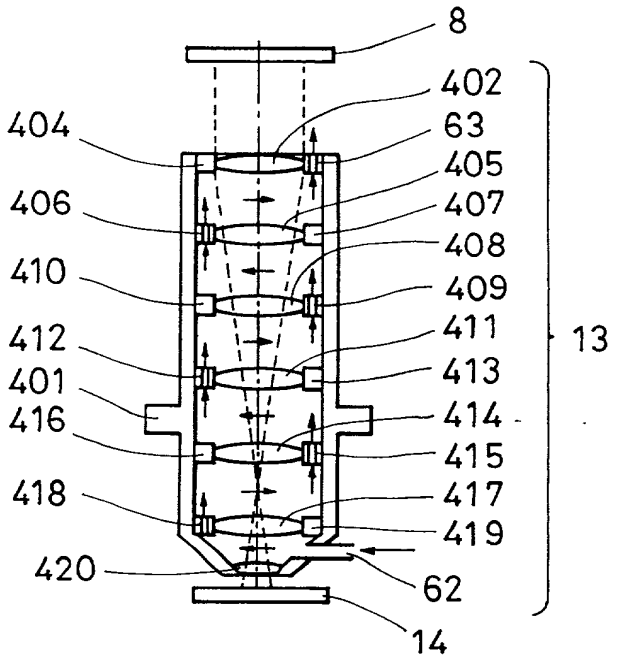

8
402
404
63
405
406
407
408
410
409
411
412
13
413
401
414
416
415
417
418
419
420
62
14

FIG. 6

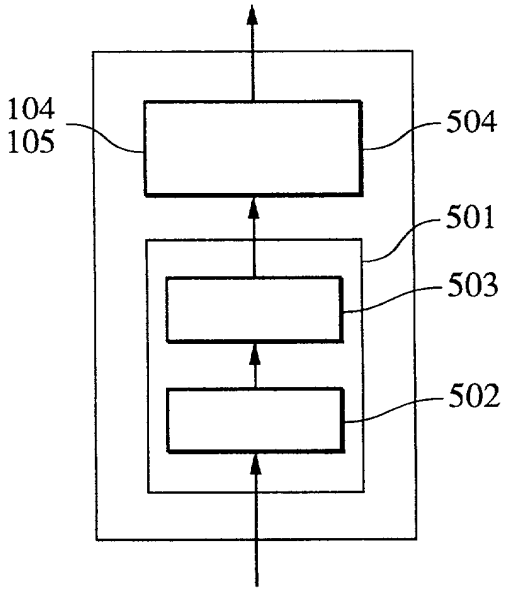


FIG. 7A

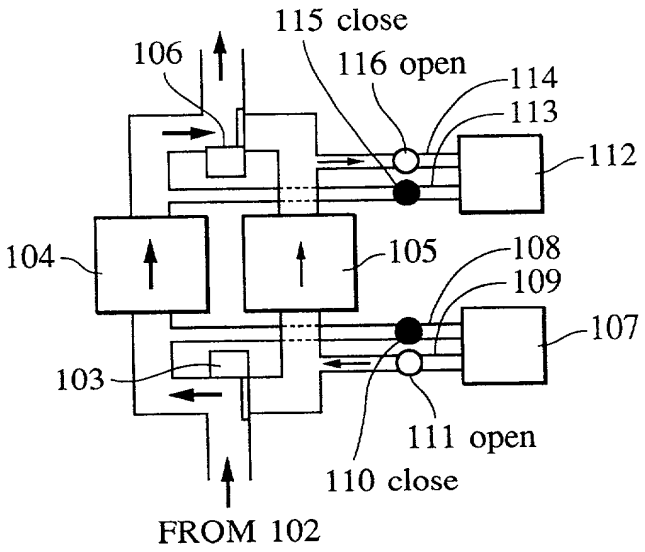

115 close
106
116 open
114
113
112
104
105
108
109
107
103
111 open
110 close
FROM 102

FIG. 7B

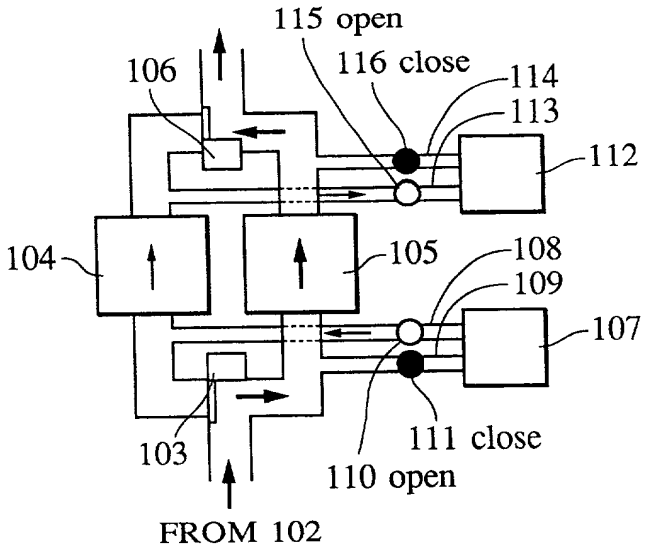

115 open
106
116 close
114
113
112
104
105
108
109
107
103
111 close
110 open
FROM 102

FIG. 8

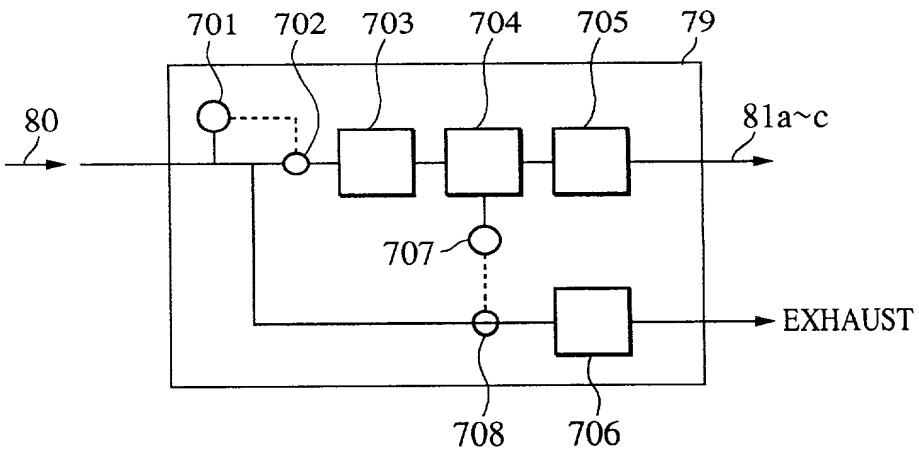


FIG. 9

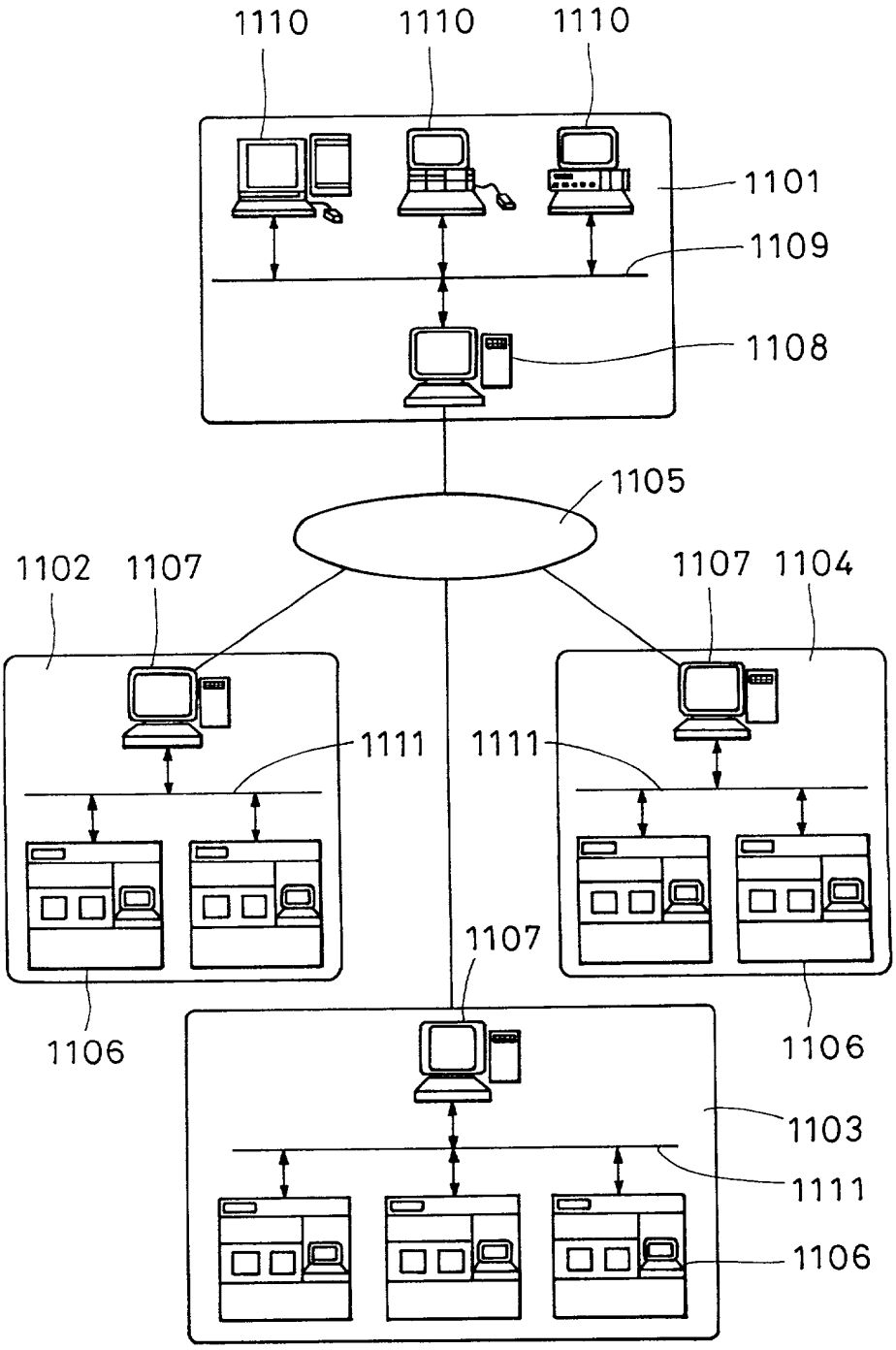

1110
1110
1110
1101
1109
1108
1105
1102
1107
1107
1104
1111
1111
1107
1106
1106
1103
1111
1106

FIG. 10

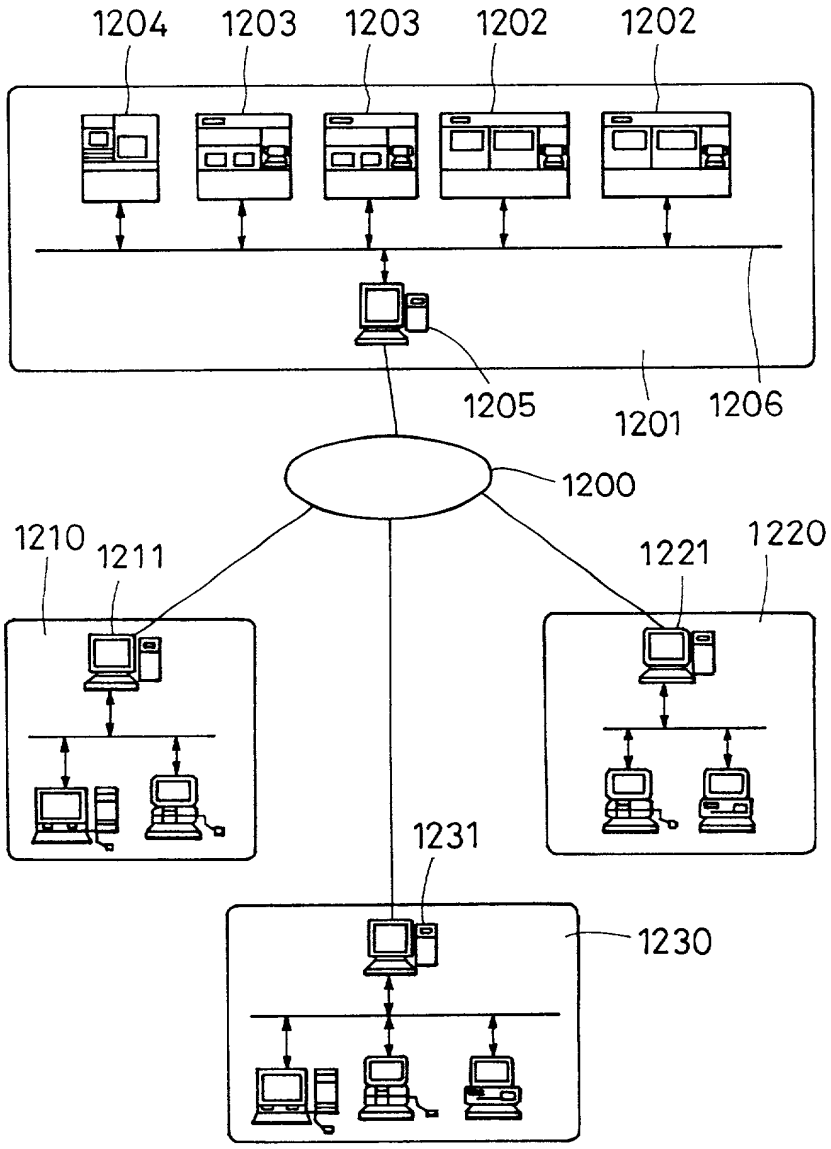

1204
1203
1203
1202
1202
1205
1201
1206
1200
1210
1211
1221
1220
1231
1230

FIG. 11

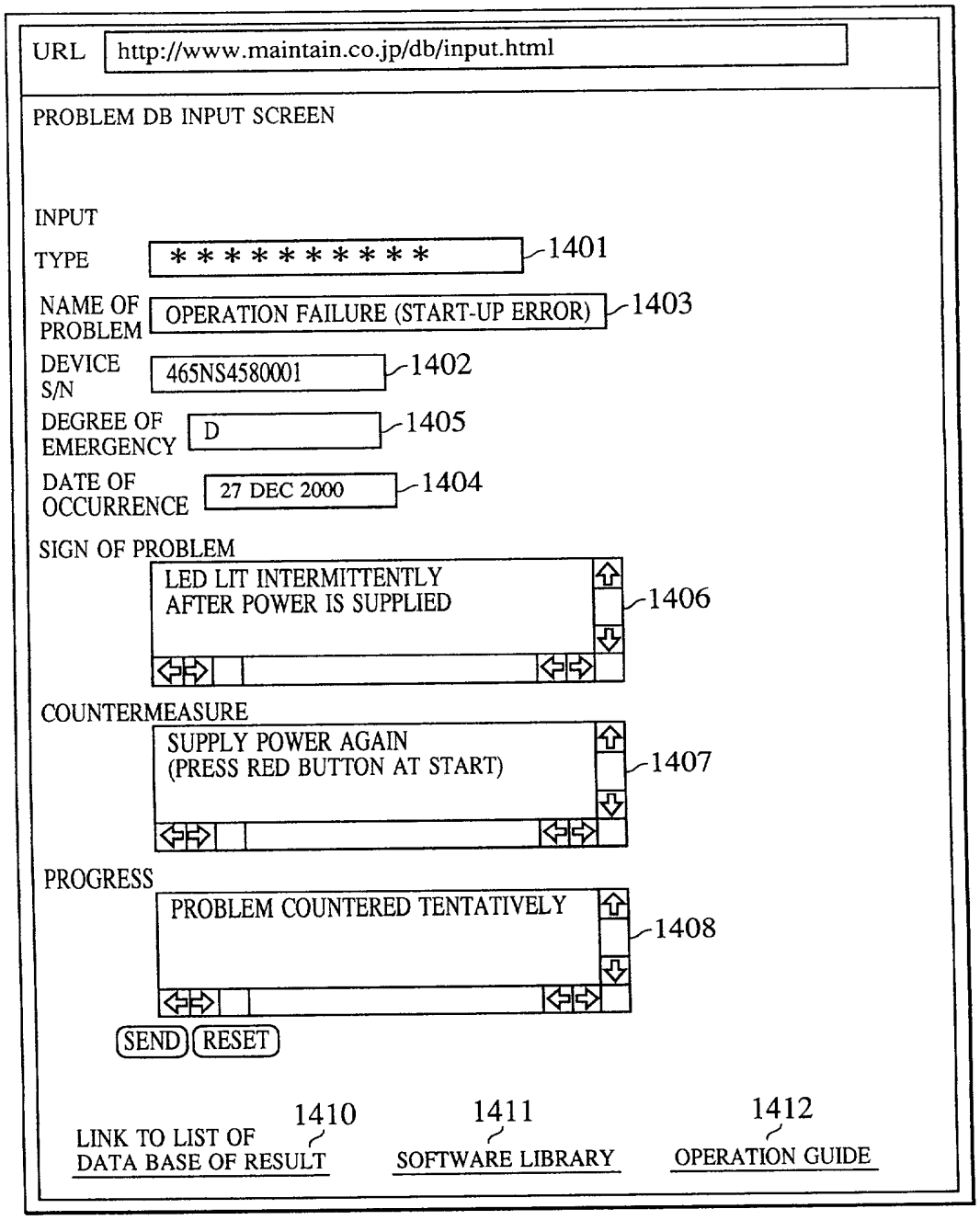

URL
http://www.maintain.co.jp/db/input.html
PROBLEM DB INPUT SCREEN
INPUT
TYPE
****
1401
NAME OF PROBLEM
OPERATION FAILURE (START-UP ERROR)
1403
DEVICE S/N
465NS4580001
1402
DEGREE OF EMERGENCY
D
1405
DATE OF OCCURRENCE
27 DEC 2000
1404
SIGN OF PROBLEM
LED LIT INTERMITTENTLY
AFTER POWER IS SUPPLIED
1406
COUNTERMEASURE
SUPPLY POWER AGAIN
(PRESS RED BUTTON AT START)
1407
PROGRESS
PROBLEM COUNTERED TENTATIVELY
1408
SEND
RESET
1410
LINK TO LIST OF DATA BASE OF RESULT
1411
SOFTWARE LIBRARY
1412
OPERATION GUIDE

FIG. 12

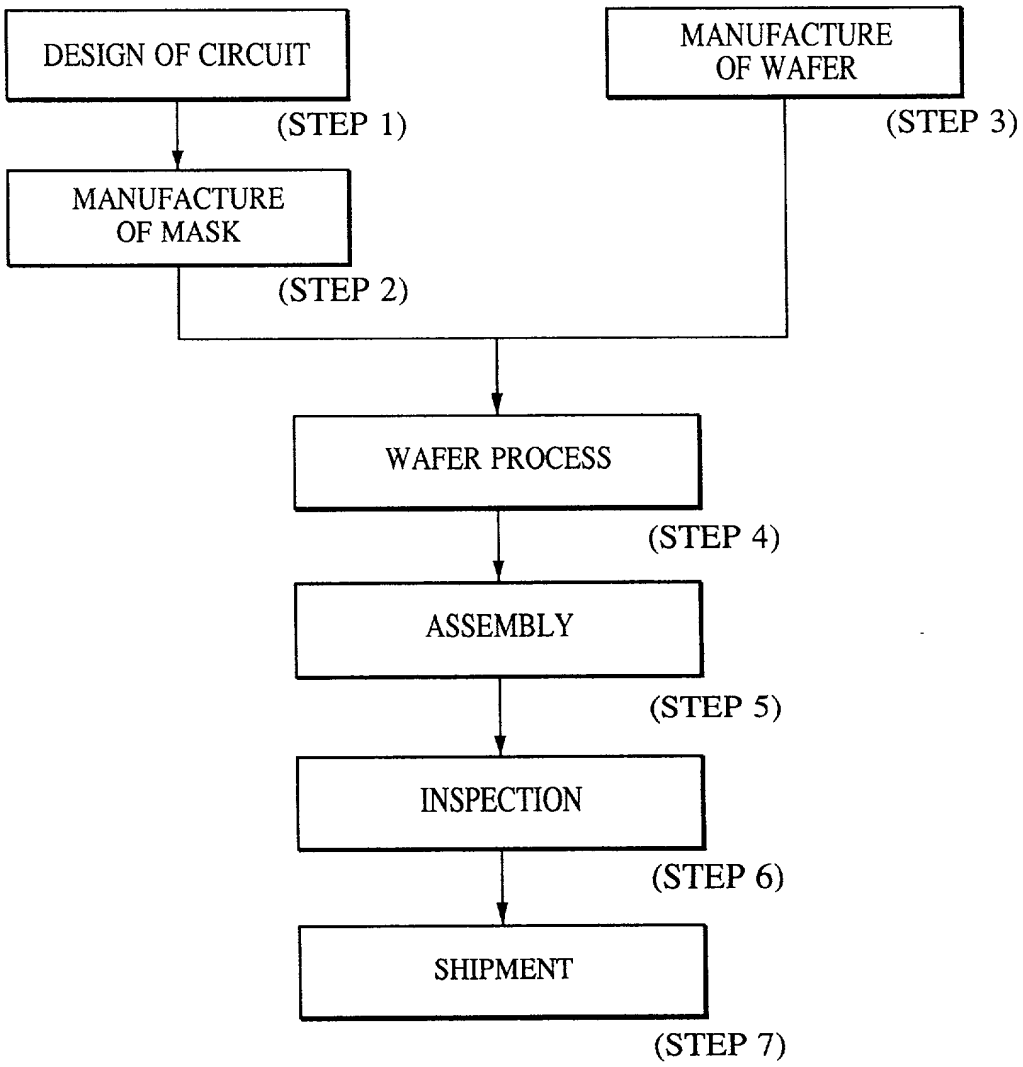

DESIGN OF CIRCUIT
(STEP 1)
MANUFACTURE OF WAFER
(STEP 3)
MANUFACTURE OF MASK
(STEP 2)
WAFER PROCESS
(STEP 4)
ASSEMBLY
(STEP 5)
INSPECTION
(STEP 6)
SHIPMENT
(STEP 7)

FIG. 13

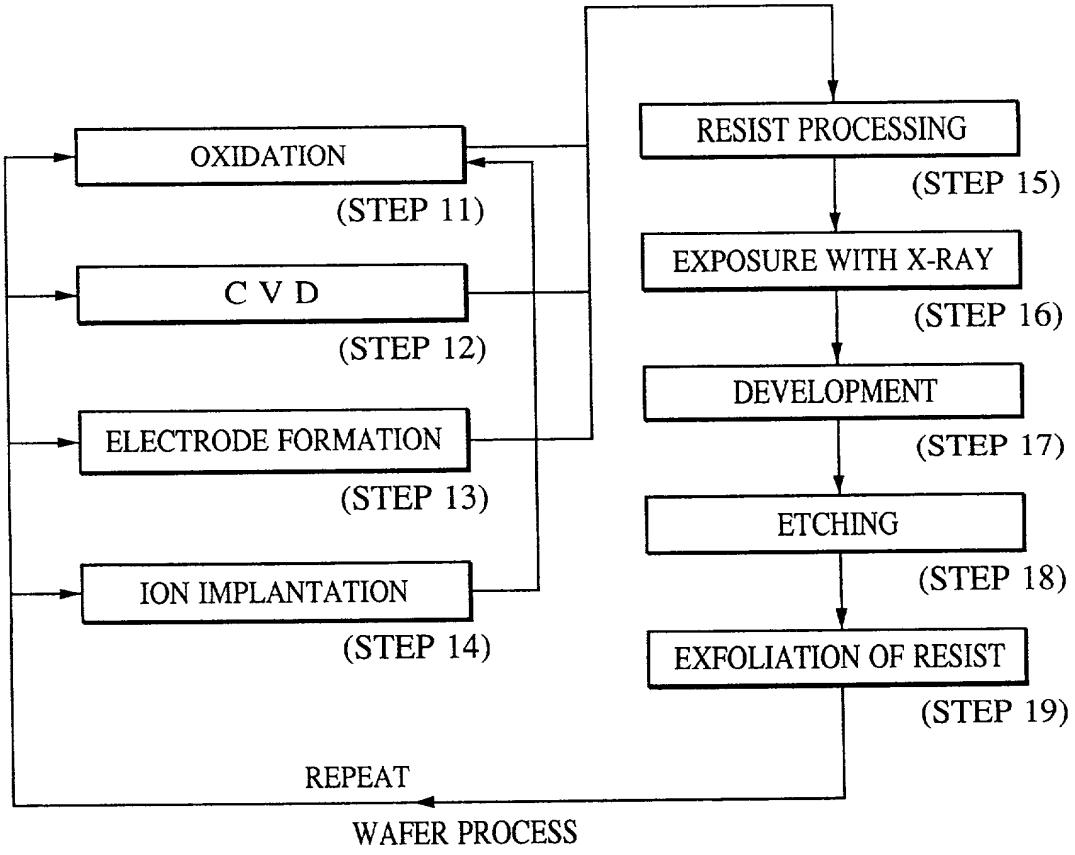

OXIDATION
(STEP 11)
C V D
(STEP 12)
ELECTRODE FORMATION
(STEP 13)
ION IMPLANTATION
(STEP 14)
RESIST PROCESSING
(STEP 15)
EXPOSURE WITH X-RAY
(STEP 16)
DEVELOPMENT
(STEP 17)
ETCHING
(STEP 18)
EXFOLIATION OF RESIST
(STEP 19)
REPEAT
WAFER PROCESS

FIG. 14

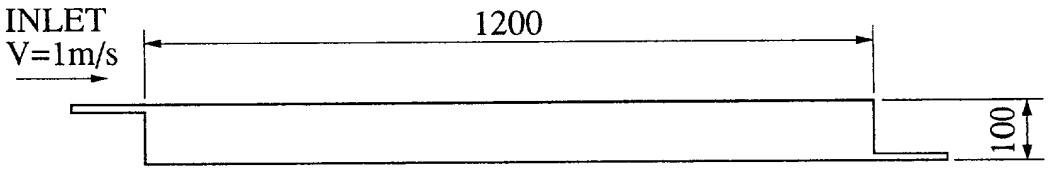
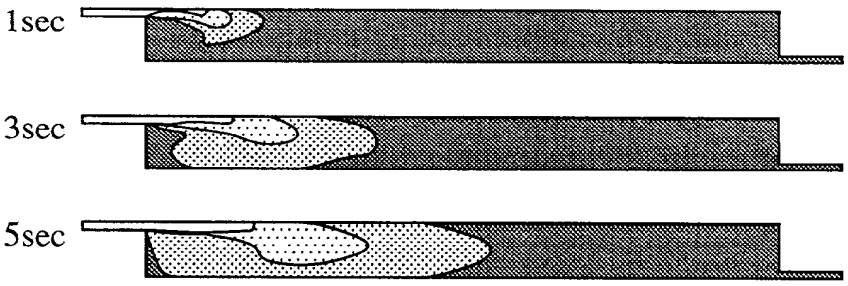
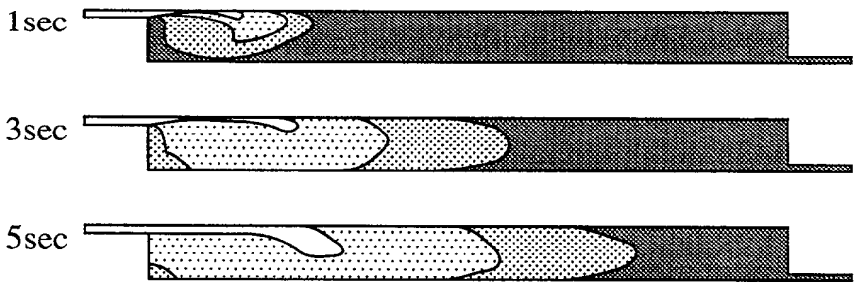


FIG. 15A



He

FIG. 15B

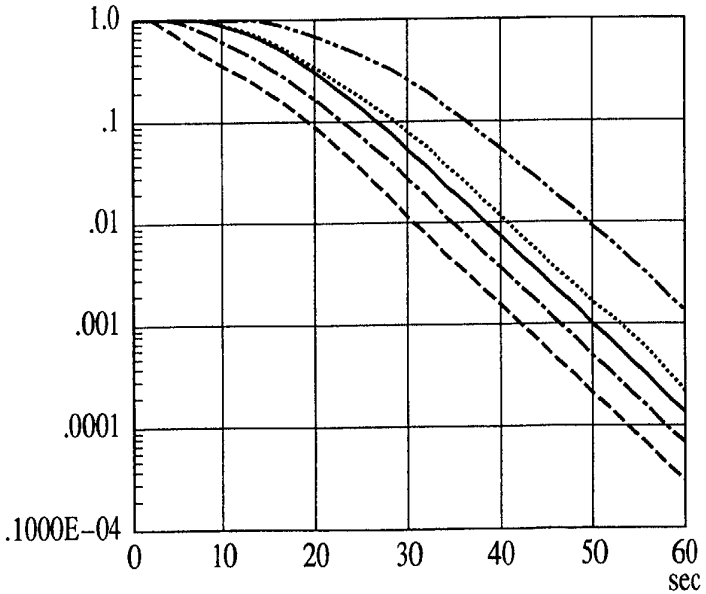


N_2

BLURRED - ILLEGIBLE

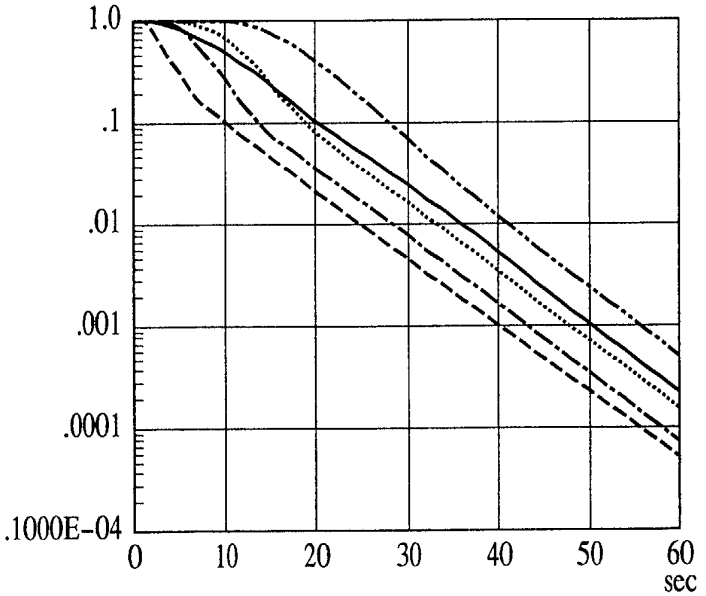
FIG. 16A

WITHOUT GRAVITY



He

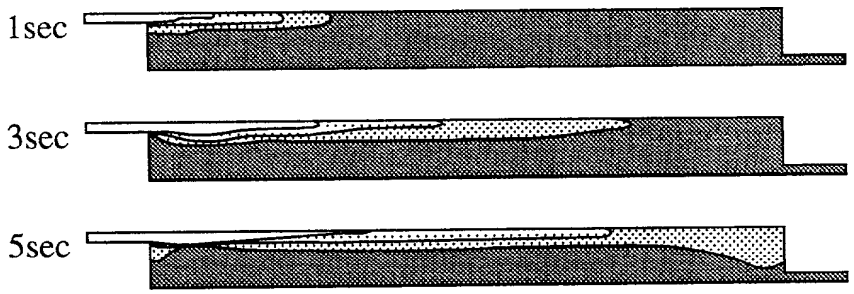
FIG. 16B



N_2

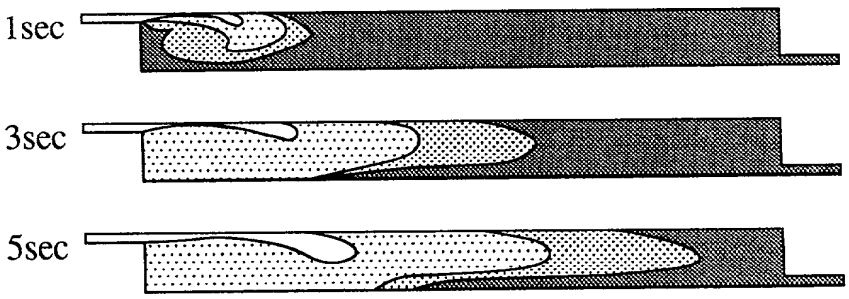
—— LOWER LEFT CORNER
--- LEFT CENTER PORTION
—·— RIGHT CENTER PORTION
—··— UPPER RIGHT CORNER
..... FLOWING-OUT PORT

FIG. 17A



He

FIG. 17B

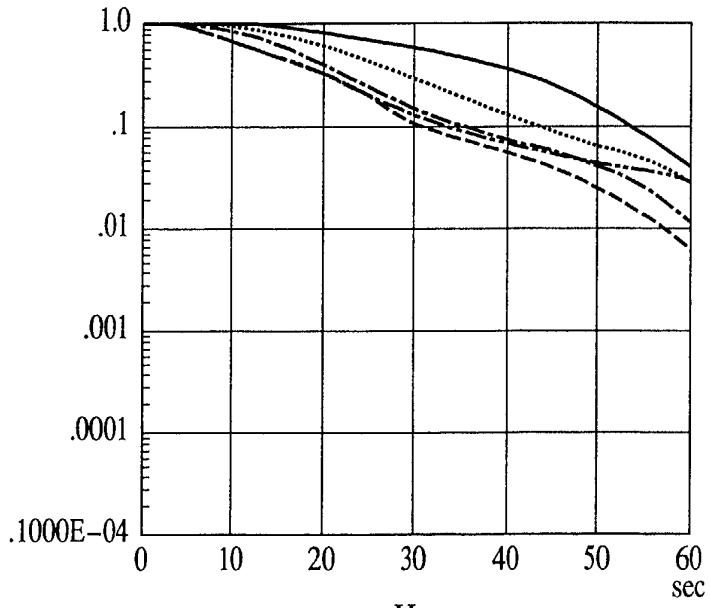


N_2

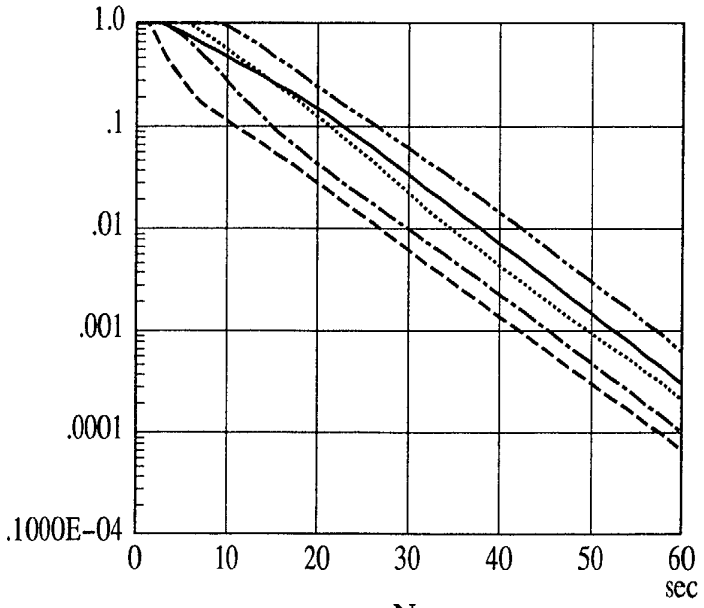
FIG. 18A

FIG. 18B

WITH GRAVITY



He



N_2

—— LOWER LEFT CORNER
--- LEFT CENTER PORTION
—·— RIGHT CENTER PORTION
—··— UPPER RIGHT CORNER
····· FLOWING-OUT PORT

FIG. 19

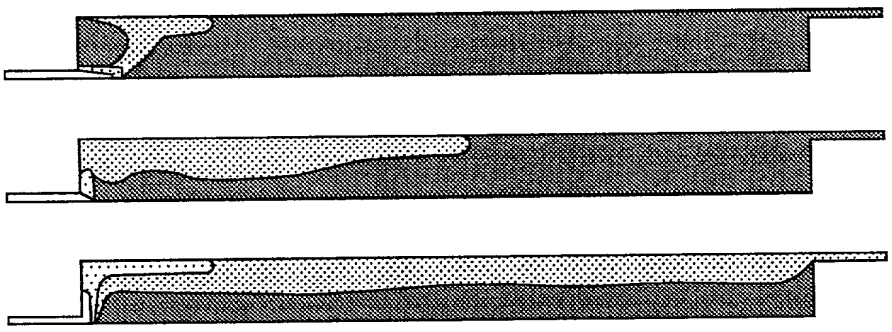
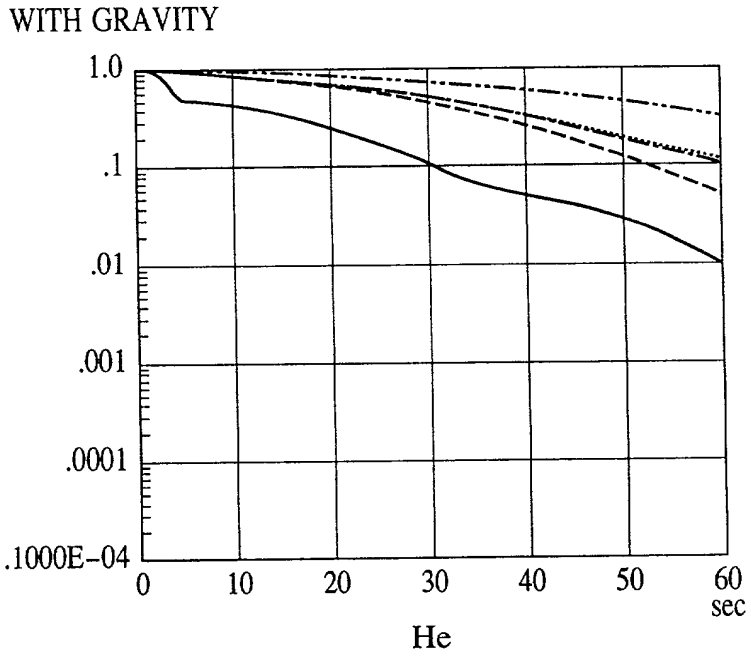


FIG. 20


WITH GRAVITY
1.0
.1
.01
.001
.0001
.1000E-04
0
10
20
30
40
50
60
sec
He
UPPER LEFT CORNER
LEFT CENTER PORTION
RIGHT CENTER PORTION
LOWER RIGHT CORNER
FLOWING-OUT PORT